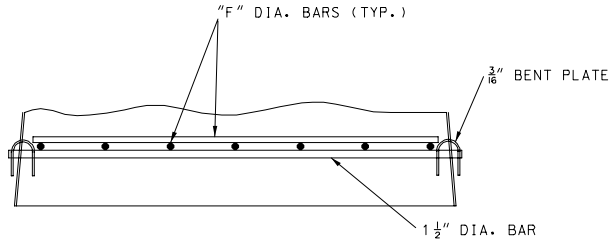


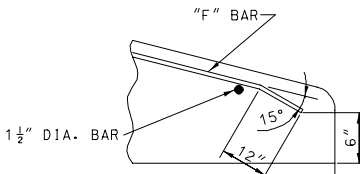
BAR GRATE SYSTEM DATA

DRAIN PIPE SIZE	3:1 SLOPE									4:1 SLOPE									6:1 SLOPE								
	A	B	C	D	E	"F" BARS	G	H	J	A	B	C	D	E	"F" BARS	G	H	J	A	B	C	D	E	"F" BARS	G	H	J
15"																											
18"																											
21"																											
24"	0	4	2'-0"	6"	15"	$\frac{5}{8}$ "	8 $\frac{1}{4}$ "	3'-3"	18.4°	0	4	2'-0"	15 $\frac{3}{4}$ "	15"	$\frac{5}{8}$ "	12"	3'-3"	14°	2	4	2'-0"	13 $\frac{1}{8}$ "	15"	$\frac{5}{8}$ "	12"	3'-3"	9.5°
30"	0	5	2'-6"	15 $\frac{1}{4}$ "	18"	$\frac{5}{8}$ "	12"	3'-9"	18.4°	1	5	2'-6"	16 $\frac{1}{2}$ "	18"	$\frac{5}{8}$ "	12"	3'-9"	14°	3	5	2'-6"	19 $\frac{5}{8}$ "	18"	$\frac{5}{8}$ "	12"	3'-9"	9.5°
36"	1	6	3'-0"	16 $\frac{1}{4}$ "	18"	$\frac{3}{4}$ "	12"	4'-3"	18.4°	2	6	3'-0"	18"	18"	$\frac{3}{4}$ "	17 $\frac{1}{4}$ "	4'-3"	14°	5	6	3'-0"	20 $\frac{1}{8}$ "	18"	$\frac{3}{4}$ "	12"	4'-3"	9.5°
42"	2	7	3'-6"	17 $\frac{1}{4}$ "	18"	1"	12"	4'-9"	18.4°	4	7	3'-6"	12"	18"	1"	12"	4'-9"	14°	7	7	3'-6"	11 $\frac{7}{8}$ "	18"	1"	9"	4'-9"	10.1°
48"	3	8	4'-0"	18"	18"	1"	12 $\frac{1}{8}$ "	5'-3"	18.4°	5	8	4'-0"	18"	18"	1"	12 $\frac{5}{8}$ "	5'-3"	14°	7	8	4'-0"	13"	18"	1"	9"	5'-3"	11.9°
54"	4	9	4'-6"	18"	18"	1 $\frac{1}{8}$ "	13 $\frac{1}{8}$ "	5'-9"	18.4°	6	9	4'-6"	18"	18"	1 $\frac{1}{8}$ "	19 $\frac{3}{8}$ "	5'-9"	14°	7	9	4'-6"	14 $\frac{1}{4}$ "	18"	1 $\frac{1}{8}$ "	9"	5'-9"	13.7°

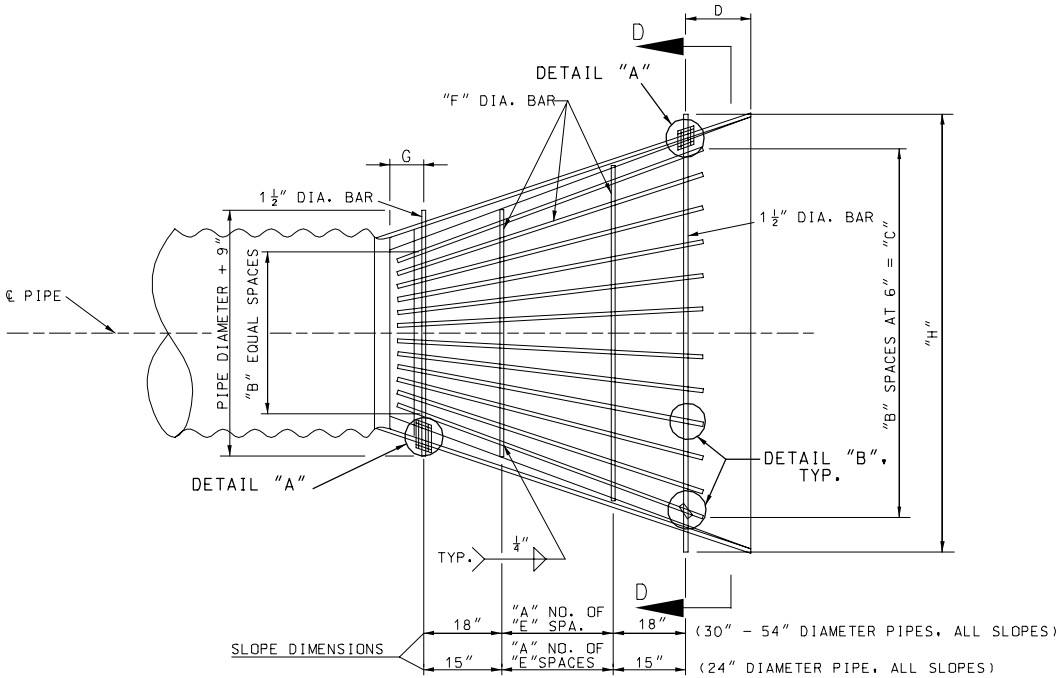
** BAR GRATE SYSTEM IS NOT REQUIRED FOR DRAIN PIPE DIAMETER OF 21" OR LESS, FOR SINGLE PIPE INSTALLATIONS.



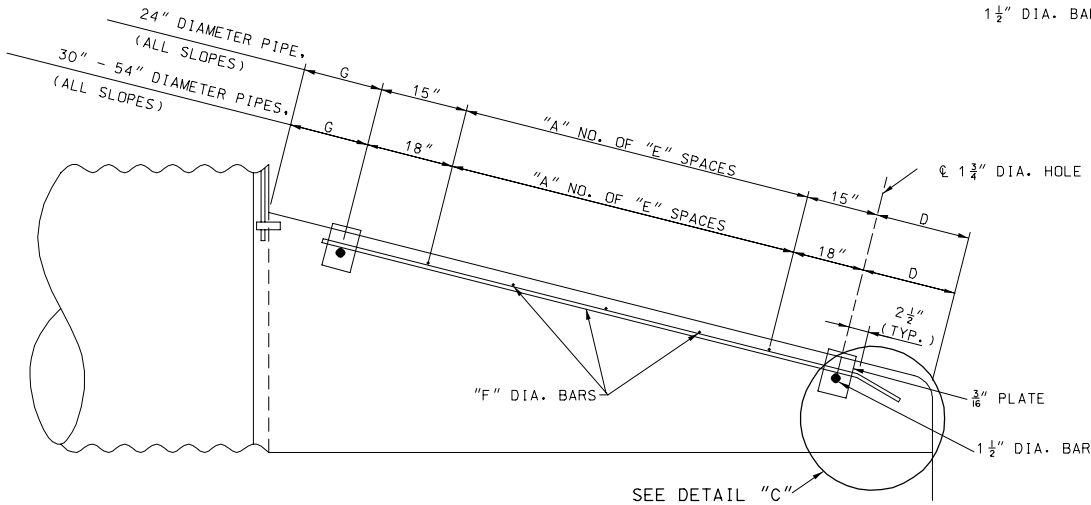
SECTION D-D



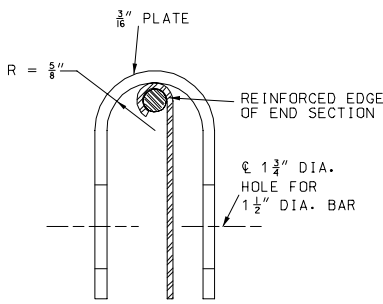
DETAIL C



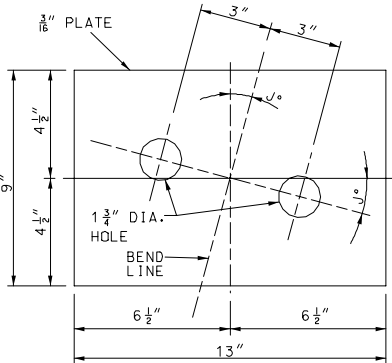
PLAN



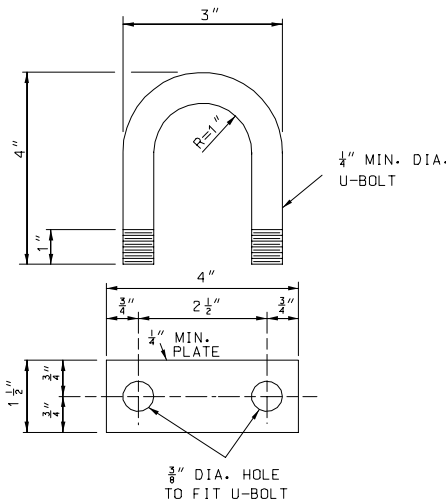
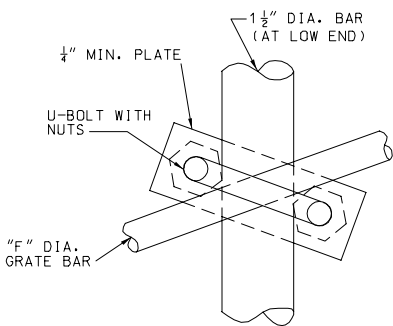
ELEVATION



DETAIL A
BENT PLATE ANCHOR



DETAIL B
U-BOLT ANCHOR



GENERAL NOTES:
ALL STEEL MATERIAL FOR BAR GRATE SYSTEM SHALL BE IN ACCORDANCE WITH ASTM A575 GRADE 1020 STEEL.
ALL MATERIAL IN GRATE SYSTEM SHALL BE GALVANIZED.
GALVANIZING SHALL BE DONE IN ACCORDANCE WITH ASTM A123.
ALL MATERIALS, FABRICATION AND INSTALLATION OF OPTIONAL BAR GRATE SYSTEM USED IN LIEU OF SAFETY BAR SYSTEM SHALL BE INCLUDED IN CONTRACT UNIT PRICE BID FOR END SECTION (SAFETY SLOPE).

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

OPTIONAL BAR GRATE
SYSTEM FOR SAFETY
SLOPE END SECTION

DATE: _____

EFFECTIVE: 07-01-2004

732.10F

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